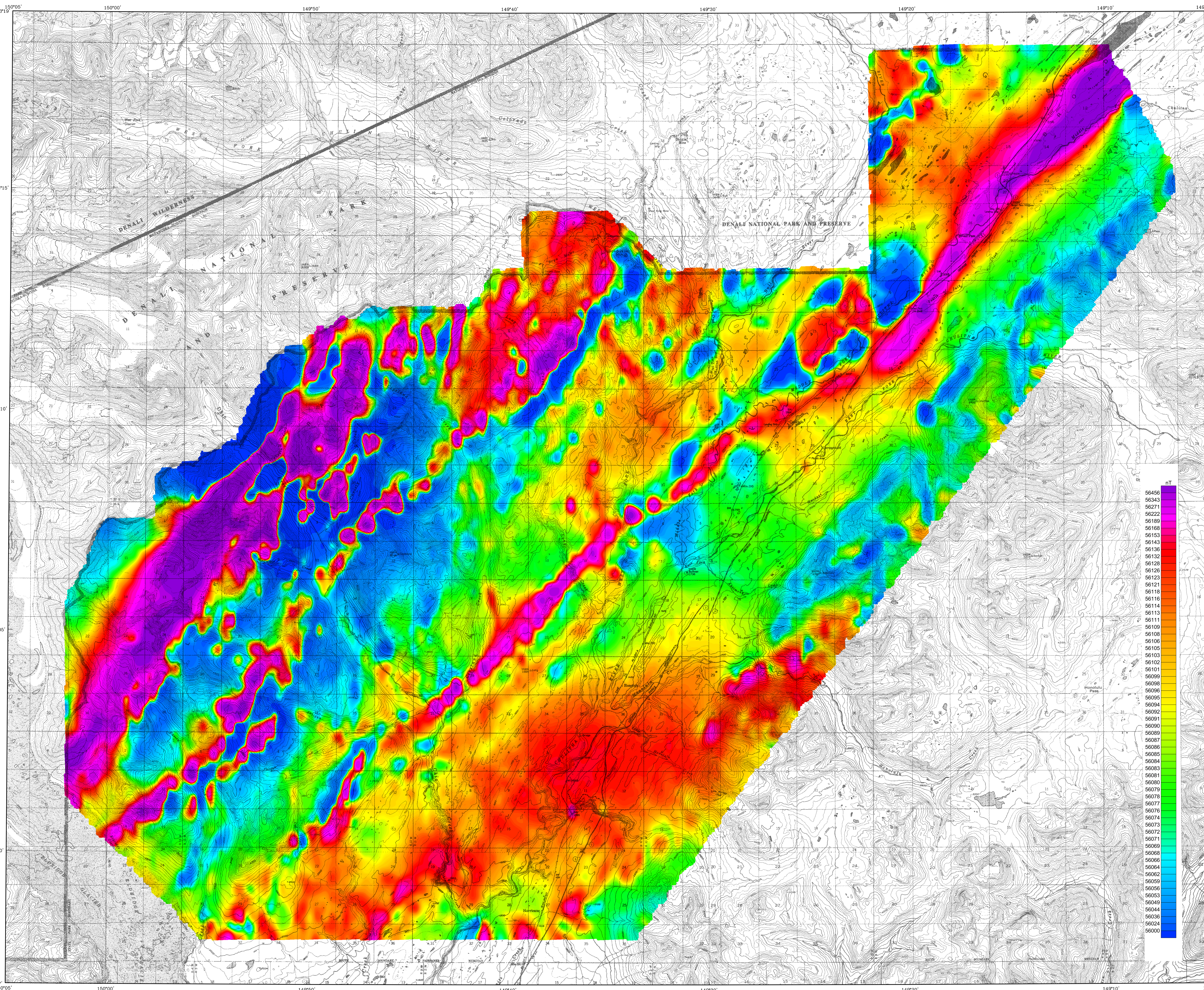
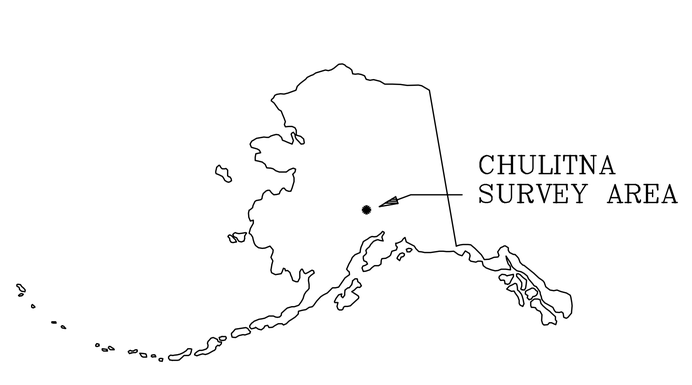


Base from U.S. Geological Survey Healy A-5, B-5, 1950; A-6, 1949; B-6, 1954; Mt McKinley A-1, 1954; B-1, 1995; Talkeetna D-1, 1958; Talkeetna Mts. D-5, 1950; D-6, 1951; Quadrangles, Alaska

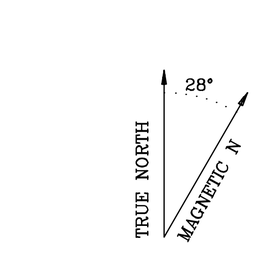


SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM MEAN SEA LEVEL



APPROXIMATE MEAN DECLINATION, 1949

TOTAL MAGNETIC FIELD OF THE CHULITNA MINING DISTRICT, ALASKA

PARTS OF HEALY, MT.McKINLEY, TALKEETNA AND TALKEETNA MTS. QUADRANGLES

by
Laurel E. Burns, Fugro Airborne Surveys Corp., and Stevens Exploration Management Corp.
2004

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM[V] Electromagnetic (EM) system, a Scintrex cesium CS2 magnetometer, and a Herz VLF system installed in an AS350B-1 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

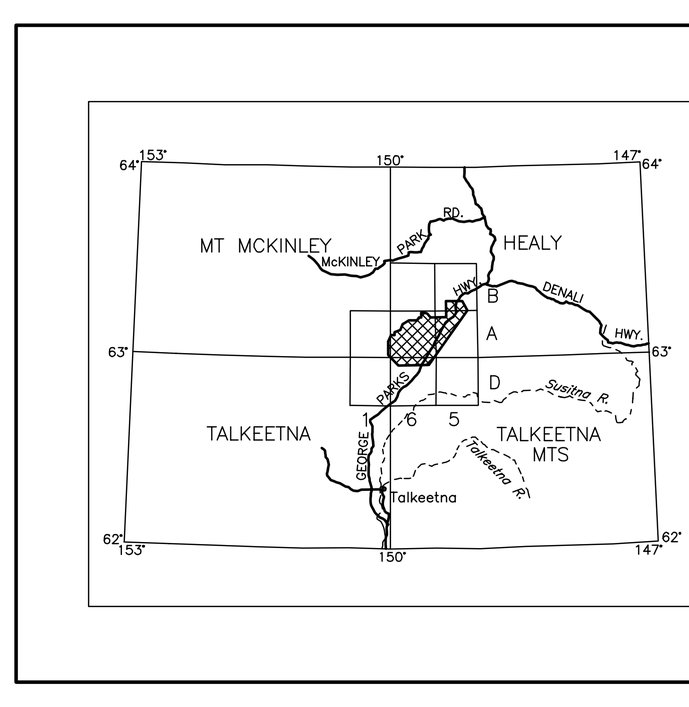
A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 147°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m with respect to the UTM grid.

TOTAL MAGNETIC FIELD

The magnetic total field contours were produced using digitally recorded data from a Scintrex cesium CS2 magnetometer, with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October, 1996) was removed from the leveled magnetic data.

Akima, H., 1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589–602.

LOCATION INDEX



SURVEY HISTORY

The map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, and Stevens Exploration Management Corp. The map was produced by Fugro Airborne Surveys and supercedes the earlier full color version released by DGGS in 1997. Airborne geophysical data for the area were acquired and processed in 1996 under contract between DGGS and WGM, Mining and Geological Consultants, Inc. The subcontractor acquiring and processing the data was DIGHEM, a division of CGG Canada Ltd. Other products from this survey are available from DGGS, 3354 College Road, Fairbanks, Alaska, 99709–3707.